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Diane Tavenner

Hey, Michael.

Michael Horn

Hey, Diane. Good to see you. And continue these conversations we're having this season.

Diane Tavenner

Yeah, what a season it is. We are hearing from so many people that they really appreciate the conversation we're having about AI and education because it's really grounded in what's actually happening right now. And, and today's gonna be no exception to that. But before we jump to our guest, who I'm very excited to speak with, we have an ask of our listeners.

Michael Horn

We do. And it's a little bit out of, I think, our natural character, if you will. Diane but it's also kind of crazy that we've never made the ask before. So, you know, here we are seven seasons in and we are hoping that you will all take a quick minute to rate, review Class Disrupted wherever you listen or watch. And of course please subscribe on whatever platform you are, help others and as most of you know, Class Disrupted has largely been a labor of love for both me and Diane. I say largely because they're moments where we're like, is it love or not? But it's certainly never been about the likes and ratings, but it turns out that they do matter. So we would certainly appreciate it.

Diane Tavenner

We definitely would. And that please don't stop with the most valuable thing to us, which is all of the notes and emails and conversations we have with folks about what you like and what you're interested in, what you want more of, who you want us to talk with. Those pieces of feedback are invaluable. And it just turns out that people are confused that none of that shows up in the public space. So we'd be grateful if you would just say it publicly, what you tell us privately.

Michael Horn

It's perfect. Diane all right, let's transition to our guest that we are both excited to learn from today. Diane.

Andrea's journey to Kira Learning

Diane Tavenner

Yes. So I'm excited to welcome Andrea Passanetti. He's the co-founder and CEO of Kira Learning which is a venture backed educational technology company that develops AI based tools for curriculum design, automated grading and teacher support. And I think we're going to learn a whole bunch of interesting things about all those pieces today. Notably, one of his co-founders is Andrew Ng. Prior to Kira Learning, Andrea founded Teach for China in 2008 and served as the CEO of that organization for over a decade. He oversaw the placement of teaching fellows in under-resourced schools across rural China and his work with the organization led to him being selected as a World Economic Forum Young Global Leader and his inclusion in Forbes 30 under 30. Under his leadership, Kira Learning has established partnerships with organizations such as Anthropic and various state departments of education to implement AI integrated computer science and STEM curricula. And just recently, Kira has announced, I think, what you're calling 2.0, which is what I think we're really going to get into today.

So welcome, Andrea.

Andrea Passinetti

Yeah, thank you so much for having me. Excited to be here.

Michael Horn

Yeah, we're excited to learn from you. And so, Andrea, let's maybe back up before we get into the what and mechanics of Kira Learning, tell us the origin story for it. I'm guessing your experience in founding and leading Teach for China probably

played some sort of role in all this, but walk us through the motivation and inspiration behind the current work.

Andrea Passinetti

Yeah, you know, it's interesting. My work at Teach for China, the name sort of has implications that belie what actually happened there. So the Teach for China program certainly had a big component which was placing fellows in existing classrooms in rural communities. I can talk a little bit about how I embarked on that journey in the first place, which was a great source of inspiration for me, but also very much happenstance. But what's interesting about that experience is that we also started a chain of charter schools. So these were the first charter schools in China. In fact, I think to date, probably the only charter schools in China. And by that I mean public schools that were being run by a private organization, in our case a foundation.

And we started these charter schools with a view towards personalized learning. In fact, we learned a tremendous amount from Summit at the beginning of that journey. The way we structure these are mostly rural schools in fairly remote locations, and we had a lot of capital to deploy to make these great environments for learning and growth for students. They were extremely expensive. We were able to hire amazing teachers, many recent college graduates in China, but many more experienced as well. And we had essentially full reign in terms of how the day was structured, how time was allocated, how curriculum was composed, and how sort of knowledge was conveyed in the classroom. They were also mostly boarding schools. So in addition to the 8 or 9am to 3pm school day, we also had a lot of time after the school day to continue supporting students and to make sure that they were on the right path more generally.

And those ended up being extremely successful. The graduation rates, students' subsequent continued growth, and the number of students who went to college, who were maybe the first students in their villages or their communities who did pursue tertiary education, was pretty unprecedented. And the idea for Kira really stemmed from that experience. I had known Andrew for some time and what I realized as we were building these charter schools was that it wasn't really a replicable model like the reality was it was a great experience for everyone who's involved, parents, students, teachers, administrators, et cetera. But it was too expensive to replicate beyond the scope of the schools that we'd started. And I started investigating AI as a potential solution.

I worked on a white paper with McKinsey about this particular question, which was actually what brought me to Summit to learn a little bit about the approach there, as well as a number of other schools that were at the early stages of experimenting with AI as a tool for facilitating personalized learning and making it possible at scale. So that's how I embarked on this path, how I started thinking about what AI could do. This was all pre LLM. So this was more leveraging machine learning techniques, NLP, and figuring out what the right entry points for AI in personalized learning were. The reality is, as most, I think, discovered at the time, that the versatility of AI was probably still insufficient to support the kinds of results at scale and that personalized learning was trying to achieve. But obviously the advent of LLMs, so ChatGPT, like interfaces that were more discursive, more powerful, and then eventually trained on larger troves of data, has changed that discourse entirely and changed the frontier of what's possible.

Michael Horn

So Andrea, maybe quickly there, just give us a sense of the time frame, like so. Right, because you're setting up these personalized learning charters in rural China. Fast forward you and Andrew collaborate and start Kira thinking that there must be a technology layer to make personalized learning more scalable, more doable, more repeatable. What year is that? And then just so we ground ourselves.

Andrea Passinetti

Yeah, so we started with the charter schools around 2015 and I started working on Kira. So I went back to Stanford and was doing a master's degree in computer science focused on artificial intelligence, very much with a view towards starting Kira, obviously wasn't called Kira at the time, but the intention was that intention. Andrew and I started working on this in 2021, I believe. So it was more of a summer project at the time and kind of an exploration. And the wedge we saw then was AI as a tool for supporting non technical instructors of technical subjects. So computer science is an example. But artificial intelligence as sort of a specialization in computer science was where we were most interested back then.

We saw a lot of districts and states in the U.S. passing legislation making computer science a requirement for graduation. We were thinking about job readiness and we saw that most computer science instruction was web development focused and algorithm focused and kind of missed the importance of AI. So supporting more teachers, more schools in being able to teach AI to students by providing an AI tool, an AI teaching assistant for folks who didn't have the subject matter expertise. And

that's what we started building in 2021, ChatGPT as an API. So commercial availability of LLMs, the ability to leverage LLM engines from an application layer happened shortly thereafter. And so a lot of the work that we'd been doing with NLP and machine learning was very quickly substituted. So we just realized it was possible to do a lot more, a lot faster and to build in a way that was slightly ahead of the frontier.

So in a way that allowed the product experience to improve as LLMs became more powerful. And that's how Kira ultimately went down this path.

Michael Horn

Well, so say one more word about that, because it sounds like it started in one place to really, as you said, make the teaching of these technical subjects far better for teachers who probably hadn't had the training or expertise in these areas. You have this kernel of personalization as well with what maybe the AI can support. And there's some limits there, as you noted, at least initially in terms of the machine learning approach. So now fast forward, you've launched, I guess, what is called Kira Learning 2.0. Talk us through. Like, how do you describe what Kira is today? When someone says what do you do? You know, what is this platform? How do you describe it?

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Andrea Passinetti

So we've been calling Kira the AI operating system for education from the get go. That was really the intention behind what we've been building. As you guys probably know better than most, districts have a lot of software tools that they have to juggle or choose to juggle. Most districts have about 3,3000 subscriptions that are active at any given point in time. I read a statistic saying that about two thirds of those actually go unused. Most of them are point solutions.

So not end to end or system or platform style solutions, but rather individual point solutions which are then wedged into a learning management system. If you look at enterprise, so you look at companies that are not school districts and you try to do an apples to apples comparison by looking at either headcount or revenue numbers, the equivalent for a company at a similar scale is about 300 software products. So 300 subscriptions.

Michael Horn

So an order of magnitude less. Wow.

Andrea Passinetti

Exactly. Then a district. Yeah. Which, setting aside the cost implications, also reduces complexity tremendously. Right. Like one of the big challenges in systems management is managing complexity. And districts have done themselves a big disservice, both in terms of budgetary allocation, but also in terms of the ability to manage and drive outcomes by having such a broad sort of stable of products that they need to govern. So the opportunity with AI is consolidation, and not consolidation for consolidation's sake, but because you actually end up with better outcomes and results and less user friction when you have a lot of experiences that are being funneled through the same interface and the same platform.

How Kira enhances education systems

Andrea Passinetti

So when we say operating system for education, that's what we mean. And Kira fundamentally does four things. So the way we've scaffolded to an operating system is by providing an AI overlay to LMS's or a full AI LMS, depending on how districts choose to adopt Kira. That means you can query your existing LMS, so you can speak to an LMS in natural language in the same way you would via an interface like a Claude or a ChatGPT with other products. So that's called an MCP server. Basically all the data that exists in a system of record can now be queried through a system of action. So the overlay to the LMS's, making all that data a lot easier to interact with. The second is AI native MTSS.

So Multi-Tiered Systems of Support RTI and the ability to know where students are in their learning journeys as well as their SEL journeys and intervene and create interventions for them as well as track those interventions. The third is curricular content. So really being able to build full textbooks or full 165 contact hour learning experiences. So year long courses, both at the, you know, elementary school level, the middle school, the high school, the tertiary level, even adult learning, which is something that's only been possible, I would say, for the past four or five months. And I can talk a little bit more about that as well. And then the fourth piece is assessment. And traditionally these all exist as their own product areas with multiple point solutions. Kira has taken those and consolidated them into one experience or one interface.

And the goal is to be able to take those 3,000 software products, those 3,000 point solutions, and boil them down to 10. We believe that with 10, maybe 20 products, districts will be a lot more efficient. They will reduce a lot of clutter. The experience of using software will go from being a depleting one to being an accretive one. And ultimately it'll drive better outcomes for students, which is the entire point of adopting technology and education. So that's what we're calling Kira 2.0. Fundamentally, it's really Kira 1.0.

We've been an R and D company for the past three and a half years and it just feels like the technology has caught up with the vision and purpose of the company.

Diane Tavenner

That's awesome. Let's. So you know me, I want to dig in about how it actually works. And I've had the privilege of being able to see a little bit and play with you in Kira a little bit. And so I want to just try to bring it to life for folks. And so let's dig into how. I mean, you're literally working with countries, districts, schools, teachers, students. They're all using Kira Learning.

So let's dig in on what it actually means to have this sort of AI native platform that combines all of those key pieces you just said. And maybe let's just start with curriculum. I know that recently you literally rebuilt the entire curriculum for a country in a very short period of time. So talk about that a little and let's then pull it through all the way to the student.

Central American AI education initiative

Andrea Passinetti

Yeah, so we'll be disclosing the country in the next month or so, but it's a Central American country that really wanted to embark on an AI leapfrog initiative in education. They had never had a learning management system. So as is the case in most places outside of the US LMS's are very much a US sort of focused product category. Which is not to say they don't exist outside of the US but predominantly the market is, is here. So this is a country that didn't have an LMS and had more conventional textbooks. And they took it upon themselves to find a partner that could match their ambition and vision in this leapfrog initiative. And that's how they were connected to Lira. And over the past three months they've rebuilt their entire textbook stack and implemented Kira as an AI native LMS across the country.

It's a progressive rollout between now and the end of this year. But that is the initiative and how we've been working together. The interesting thing about

everything I described, and I think the real challenge for AI in education is having a real time sense of what students are learning and how they're progressing towards mastery or competency based learning in a way that allows for interventions and personalization at the right time. So that's sort of been the promise of personalized learning from the get go. And the time dimension of that is where things have broken down in the past. It's also the accuracy of those interventions. So that's what we look to solve by creating curriculum.

And I can elaborate a bit more on that.

Diane Tavenner

Let's tell people. So in this country and in most districts still, I think across the country, maybe we've got sort of a hybrid of things going on now. But the idea is that like, look, every school has a set of textbooks for their various, you know, subjects and courses and whatnot. And they're given to teachers and teachers sort of get a manual and maybe some PD and then they go in their room and you know, we have this scene and teaching. You go in, you close the door and you do your thing, right? And then at the end of the year, maybe if you're in a course that has the end of your assessment, there's some sort of external assessment of what the students learned or didn't. And then those results show up many months later after you're not teaching the students anymore. They're very backward looking. And so it sounds like that's kind of where the country was.

And now with Kira, literally what will happen today? Like those textbooks are gone out of the classroom. Students, teachers are logging into a platform. What does it look like?

Andrea Passinetti

Yeah, great question. So before I get into the day to day, just to kind of elaborate on what you just said about textbooks, you know, textbooks are by their very nature static. Right. They don't evolve in real time certainly, but they also, they don't really evolve in even yearly increments. So textbook adoption is a six, seven year cycle. I think historically that was probably the cadence of the evolution of knowledge. Obviously things have accelerated a lot in the past decade and the model for providing curriculum hasn't really kept pace. The cost structure also has stopped making sense.

It costs \$250 on, on average to buy, you know, a calculus textbook with all of its, you know, additional add ons for a high school student. And most districts have about

\$125 for curricular materials allocated for students every other year. Which means if you try to balance it out across all subjects, certainly with a view towards personalization, it doesn't work. The opportunity is to have instructional or courses of study that are anchored in a canonical foundation that are anchored in, in sort of a textbook or a scaffolded course of study that everyone agrees represents what grade level learning would look like sort of in the distribution for all students. But then being able to deviate from that and rescaffold for individual students based on where their level of learning actually is. So if a student is in a 9th grade Algebra 1 course, for instance, but their actual understanding of Algebra 1 concepts is at a 7th grade level, persisting on the Algebra 1 at a 9th grade level path is going to be incredibly frustrating for that student and also not very productive. So the opportunity is to take that ninth grade course of study, rescaffold it for that student who's at a seventh grade level, and also for students who are above grade level. Right.

Personalized learning and dynamic textbooks

Andrea Passinetti

So rescaffolding it for students who are at a 10th grade level, taking them off that canonical path, and then eventually re merging them to the canonical path when they're ready, or rethinking the path entirely for those students, that is, I think, you know, the promise of personalized learning. It's also what is now possible. If we take the concept of a static textbook and rethink it entirely and rethink it with a view towards that real time scaffolding, what does that require? That requires knowing what a student actually knows and what a student doesn't know, having that judgment fundamentally be precise, and then being able to build curricular materials that are scaffolded in essentially real time, but without taking the student away from that canonical path permanently. So being able to take the student back to that foundational path where they are at grade level. And that's essentially what this country we're working in does. They started with reconstructing textbooks or textbook is the wrong term, really. These dynamic learning experiences that at their core resemble what would be in a textbook, but then on almost a daily basis, calibrating what students are looking at and what students are working on and what they're learning based on their performance on antecedent materials. So every student will start the day with similar materials, but they will end the day on a slightly different sort of conclusion point, and then the next day will be rescaffolded in a similar way.

Not everything has to happen on a device. I think there's a lot of apprehension that for all of this to be possible, students need to be on devices all the time, which is not the case. It's very possible for students to work on worksheets, to use pen and paper, and then for that physical manifestation of their learning to be uploaded and then interpreted by AI in a device. So in environments where there's limited bandwidth or environments that don't have one to one devices, or just, you know, for the purposes of removing students from persistent screen time, a lot can be done with pen and paper and doesn't lose that same granularity of understanding of where students are in their learning journeys. So that's,

Diane Tavenner

There's a lot packed in there and so I just want to pull out a couple of. Yeah, Michael and I talk about a lot. So the first one I'm hearing is time. And really you are thoughtfully talking about grade levels because that's what our system has. And I think what you're talking about is a massive change management process here. And so we have to not just scramble everything for folks. So. But really what you're saying is like grade levels are sort of these imposed constructs that aren't.

They're things we've made up because it helped us organize our textbooks and organize our classes when we couldn't be dynamic. And so that can still sit out there. We can have it as a reference point. But really what you're saying is young people can learn what they need to learn when they need to learn it, and we don't have to have these false time constructs. I think the next thing you're saying is that, and it's. This is something we've talked about forever is how we just know what's going on with them constantly. There's sort of constant assessment, if you will, like running in the background to know exactly what they're getting or not getting. And obviously textbooks and curriculum do not do that.

We've historically separated assessment from the learning process and teachers can't possibly do that with all of their students all the time. And so one of the things the technology does is it lets us have that running, if you will, so that we can constantly be readapting to where they are and what they need. So they're getting the feedback. And they can too. I would assume they can see their own progress and then self direct and reflect and self assess. So talk about like what it would look like for a student to be in a classroom or in a school with Kira learning. What's their experience like?

Andrea Passinetti

You know, I think fundamentally what the experience of a student in a classroom or school looks like is really the prerogative of the school or classroom. I think software becomes opinionated at times in places where it shouldn't be. Software should be an enabler. I think AI at its best should enable learning environments in whatever form they take. And I think this is where education technology has struggled in the past. To your point about change management, AI can get us to a good place. Like AI can do a lot, technology can accomplish a lot. But ultimately it's all for not if the change management piece

Is not handled well or is not managed successfully. And so we don't really prescribe what that environment looks like. What we try to do is empower any kind of environment, whether it is a more conventional one that still references grade levels, or a more progressive one that does away with grade levels entirely or looks to support sort of, you know, quote unquote, two hour learning models where a lot is automated, where the orchestration layer that traditionally takes place in a classroom or a school is automated by AI. Ultimately, we think the right way to build an operating system solution is really to be that interstitial layer that empowers a teacher or a district or a school to make those decisions for their students and, you know, leads to better outcomes as a result of the existence of this platform, but not to dictate kind of what that environment looks like. That said, personalization of learning, I think, is sort of, as a concept, at very least, a fairly universally accepted one. I think few people would argue that learning not being personalized is better than personalized learning. I think a lot of the debate takes place at the change management level and what it takes to prepare environments for personalization. And I don't really see that as the role of software.

I don't think we should be dictating those approaches, but we should be enabling them. And that's how we've gone about the design process.

Thoughtful Education Planning with Kira

Diane Tavenner

One of the contrasts I see between what Kira is doing and what I see with a number of other products that are out on the market is that Kira has really thoughtfully enabled this kind of full picture infrastructure of the full universe of what young people could be learning in schools and kind of what I would argue and what most teachers, you know, UBD understanding by design. Backward planning. Right. So we backward plan from the big picture. And so every single thing that a student's doing each day is actually in the grand scheme of where we want them ultimately to be.

You know, I think people like to throw around the term knowledge graphs and things like that now, which, you know, yes, underline all of that. But the big idea is where do we want young people to exit high school? What do we want them to be able to know and do, and how do we backward plan into their everyday experience so that they're able to do that and keep progressing? And one of the concerns I see with a lot of products on the market is that it's like a teacher goes online that morning and grabs an activity.

You know, AI makes an activity for their classroom that might seem cool and interesting, but it's not connected in any way, shape or form. And then maybe they can assess that activity, but based on what, connected to what? And so can you talk a little bit about that, sort of, I mean, you've said it, but I just want people to really, this is the full infrastructure system. So talk a little bit about that data and understanding. And how does this ensure that young people are actually learning more and able to do more and more engaged or make that possible? Nothing can ensure that, but make it possible.

Andrea Passinetti

Yeah. Well, I think expectations of technology and education are just very low. And teachers have effectively and somewhat shockingly been the integration layer for a lot of the problems that are sort of caused by vendors. Right. When you have 3,000 pieces of software in a district and no integration layer, the teacher becomes the integration layer. What does that mean? That means a teacher is taking the output of one product, using it as input to another, and then maybe using a third product to make it look pretty, and then a fourth product to assign it to students and then a fifth product to grade it. That requires one, a lot of time and a lot of cognitive load, both of which could be better deployed in supporting students with their learning. This isn't the case in other industries.

For the avoidance of doubt, like what has been normalized in education is not normal in the world of technology elsewhere. And I think part of the reason is that this is a very underinvested part of or a very under invested vertical. So companies don't end up raising a lot of venture capital or venture capital dollars don't flow into this industry. And the dollars that do flow into the industry tend to be debt or later stage private equity, both of which are very extractive. So you end up with very expensive products that do very little. And that leads to, you know, I think consternation obviously and people being jaded, but also negative outcomes, or at

least not positive accretive outcomes. I think that's changing with AI. I think the openness to integration.

In fact, I would almost argue the imperative to consolidate platforms or consolidate solutions is a stronger one. You hear that clarion call more now with Esser funds sort of being sunset. And that's really where we've been operative. Building software is a lot faster now than it was even a year and a half ago, two years ago. And the advancement of AI is also pretty dramatic in ways that I think folks probably have an intuitive sense of. But how we can impact a learning experience or impact a product in a classroom is pretty, pretty nuanced.

Building an Integrated Teaching Platform

Michael Horn

I was going to ask this question, which is, I am curious. Like, I mean to Diane's point and what you've been saying is because of this integrated nature, you're very explicitly like, this isn't a supplemental thing here, a death by a thousand cuts here, a lesson planning tool here to go on top. Like this is core and its curriculum, right? It's not just the content. It's like all these different pieces served up in one platform. I'm just sort of curious like how that actually, like how long does it take to build something that a teacher would say, well, you know, like I hear your point, content is much more dynamic, knowledge is much more dynamic. And yet, you know, my third grade class, like the basic set of things I'm teaching, I'm not sure how much they change. So like, am I going to throw out my various textbooks and jump on this completely? Like I'm just sort of like talking us through what that actually looks like for a teacher in a school. Because that's the part that I think I'm still struggling to figure out like that, that does still sound like a big change management process.

Even if you all don't have an opinion of just how progressive and personalized the experience becomes.

Andrea Passinetti

Let me give you a specific example. Let's think about a middle school class, maybe, I don't know, middle school math or elementary school math. There may be curriculum in place that is, you know, battle tested, well worn curriculum that teachers are familiar with, that students have worked on, that has been refined over the years and doesn't need much change. It can still use rescaffolding for individual students. But there are challenges that emerge over the course of an academic year which do require some adaptation and change. Say it snows, there's a snow day, or

in some states a snow week. Say, you know, a student is out sick, say a teacher is out sick and a substitute is either not available or the sub doesn't really accomplish what the teacher needed them to accomplish. Those all present teachers, schools, districts with rescaffolding, rescoping, resequencing challenges almost on a regular cadence, right? So you may have the entire year scoped and sequenced, but you have a week disrupted for any reason and you need to rescope and resequence and that is a big undertaking.

Improving Tier 2 and 3 interventions

Andrea Passinetti

So rescoping and resequencing with existing underlying curriculum is one of the things that Kira does. So instead of building curriculum from scratch, taking existing curriculum and restructuring it in a way that meets the challenges of a real life school environment, then you have the individual student who needs a Tier 2 or Tier 3 intervention. So how do you build a specific Tier 2 intervention for a student that doesn't take the student off the Tier 1 instructional track? The thing about MTSS that I find confounding and candidly irresponsible is that Tier 2 and Tier 3 interventions, by which we mean, you know, either supplemental instruction for students who are struggling with concepts being introduced in a classroom environment, again thinking about a more conventional linear classroom, or tier three being intensive one on one tutoring, those interventions, tier two and tier three interventions are in most cases entirely divorced from Tier one instruction, which means a student may be struggling with combining like terms in a tier one instructional setting, so in a classroom setting. And then they will be placed in a Tier 2 or Tier 3 intervention that has nothing to do with combining like terms, which means when a student is placed in an intervention, more often than not they're actually being pulled further away from tier one instruction. So AI can facilitate that. And that's how we've constructed Kira to make sure that Tier 2 and Tier 3 interventions are actually rooted in Tier 1 instruction and are not keeping students in these alternate tracks, but rather are constructed with the goal of getting students back to Tier one instruction as quickly as possible.

Michael Horn

Andre, a quick question before, just before we leave that one, because a lot of that market also historically has been separate, like supplemental providers or texts are from different companies or different arms of companies and don't even connect.

Are you guys creating those supplemental materials? Are you providing the bridge between them?

Andrea Passinetti

We can do either, but creating them is really Kira's bread and butter. And where we think AI is now, you know, best positioned to support those processes. The reason that's possible and to get to the core of your question, Michael, is that everything needs to be tagged. So for data and interactions to be useful, you need to know quite a bit of information about those interactions. You need to know, first of all, what skills are being evaluated or what skills are being interacted with, what standards those skills are mapped to. And the reality of standards in the US is that sometimes they're skill based, sometimes they imply skills, sometimes there's no real connection to skills. So you have to take existing standards and disaggregate them into their component skills. So every interaction, whether it's an interaction with a tutor on a particular question, whether it's a multiple choice question, whether it's a student reading content or being read content, that all needs to be anchored in a high precision sort of tagged environment where standards and their underlying skills are equated with those interactions.

You then need to know what the nature and difficulty of that interaction is. So looking at cognitive difficulty, Bloom's taxonomy is what we default to for cognitive difficulty. But seeing whether a student has interacted with a skill or a concept, sort of at the lower levels of cognitive difficulty, or whether they're engaging with the content or curricular sort of material in a way that's high cognitive difficulty. And then what the absolute difficulty is and oftentimes absolute difficulty, So easy, medium, hard and cognitive difficulty are conflated when in fact they're very different things. You could ask a student something that's relatively low on the Bloom's spectrum. So you could give them a multiple choice question, which is actually a very difficult multiple choice question. And that is very different from asking an easy pre response question or an easy essay question where a student is engaging in a way that's higher on the Bloom scale.

How AI tags learning materials

Andrea Passinetti

So everything needs to be tagged and AI is, you know, has gotten to a point where it's a lot more effective at that granular, fine tuned tagging, but it has to be done in real time. Which means when you create a material for a student, that material has to be tagged prior to the student interacting with it. If you're using existing materials

or you're modifying existing materials outside of the context of an AI facilitated sort of environment, you don't have the benefit of that insight. So even if your tier 2 intervention is effective in places you don't know where it's been effective and you can't replicate that effectiveness. Same with tier three interventions. So whenever we create materials in Kira, we create them in a way that's fully tagged with standard skills, cognitive difficulty as well as absolute difficulty. And every interaction then contributes to our view of where a student is in terms of their progression to mastery on any concept that they've been exposed to. Now you can filter those concepts, you can sort of zoom in or double click on particular concepts, but you end up with a clear holistic view of what a student knows, what a student is struggling with, what a student is primed to learn better, and it also has a temporal element to it.

So if a student learned something or mastered something in the spring of last year and there's an entire summer between when they learn that concept or were exposed to that concept or were tested on that concept, and when they are required to keep building on their understanding of that concept. You can't make a judgment about mastery without considering the time that's elapsed between those moments of exposure to concepts. And so Kira has that temporal element which allows an administrator or a teacher or Kira as a system to support a student and rescaffold with that additional sense of confidence given time elapsed. So everything that's created works that way, and that's what allows for real intervention or real MTSS without too much distortion or noise. So practically, that's been the approach.

Diane Tavenner

I could talk to you all day

Michael Horn

because there's a lot of richness here.

Diane Tavenner

Yeah, with all due respect, you're a great nerd and I love nerding out on these things and. But we do need to move to wrapping. And so I guess I just want to wrap with this, which is what I love about what you're talking about and what I love about Kira is it feels to me like simplicity on the other side of complexity. And so if anyone just listened to all that you just said, it's really complex. Learning is really complex, multifaceted, you know, and when we're trying to do it at scale and with so many different things and whatnot, it's really complex. And we either oversimplify it on the

front end so nothing good's happening, or we get stuck in the complexity. And my real hope for what Kira is going to bring is simplicity on the other side of the complexity, because just what you just said, when I go in there as a teacher or a student, it doesn't feel complicated. I don't know necessarily that all those things are going on.

Like, I trust that they're happening. I can see them if I need to, but that's not my experience of the learning, which feels much more sort of simple and straightforward in a positive way, even though it's grounded in all of that, you know, what you just said. So again, we could talk about this forever. I think we will be talking about Kira in the future to come. And so thank you for giving us this. This taste of 2.0 so far, Andrea. And I'm going to turn it over to Michael.

Michael Horn

Well, I was going to say, before we let you go, Andrea, we have a segment, but before we do that, we just want to, you know, give a shout out to our sponsor who's helping make all of this possible this year.

And folks who've been listening know this season of Class Disrupted has been sponsored by Learner Studio, a nonprofit motivated by one question, which is what will young people need to be inspired and prepared to flourish in the age of AI as individuals and careers and for civil thriving? Learner Studio is sponsoring the season on AI in Education because in this critical moment, we need more than just hype. We need authentic conversations asking the right questions from a real place of curiosity and learning. You can learn more about Learners Studio's mission and the innovators who inspire them at www.learnerstudio.org. and with that, I will say I think we've had a very good conversation led by curiosity today and this has been, as Diane said, been fascinating on multiple levels.



Andrea, before we let you go, we do have a tradition where we share something we've been reading outside of work, watching, listening to sort of. You get to choose

whichever one you want to go down, I guess, but something that you've been unplugging with, I guess, and that, that you'd highlight for our listeners. So Andrea, you get to go first and then we'll kick it over to Diane.

Andrea Passinetti

Great question. And first of all, thank you so much for having me. This was really exciting. I've been reading a book recently that is a biography of Harry Houdini by an author by the last name of Silverman. And I've just been fascinated about sort of his life experience. Harry Houdini's name was actually Eric Weiss. He was an immigrant from Budapest in Hungary. And there's something about sort of his life experience and sort of his personal transformation as well as how he endeavored to fit into sort of a new environment and establish himself as a fixture in it that has a lot of relevance in the world we live in today.

So highly recommend it.

Diane Tavenner

Thank you. I'm going to recommend this week the Singers, directed by Sam Davis, and it's about a 19 minute live action short film on Netflix. I actually thought it was a documentary, but there's a difference. There I think it's worth every one of those 19 minutes. It was surprising, it was confusing, it was emotional, it was provocative. After we watched it, Scott, my husband and I had just such an interesting conversation about men and what it means to be a man today. And Michael, you know, this is something I've been talking about here.

The mom of young men and. And worried about men in our society. Yeah, I'll just leave it there. Really highly recommend.

Michael Horn

All right, noted and 19 minutes. Feels doable. Although, Andrea, I will say I've read that biography and it's a good one, so.

Andrea Passinetti

Really?

Michael Horn

Yeah, yeah. So I'll plus one it as well there. Mine, it's America's 250th, obviously. And I finally read the second of Rick Atkinson's trilogy on the Revolutionary War. He's writing these three books and his second came out, I want to say, about nine months

ago, maybe finished it. It's called the Fate of the Day. The war for America. Fort Ticonderoga to Charleston, 1777-1780.

I'll just say, you know, Diane knows I love history and I love reading about history. And I just totally didn't know a huge segment of the Revolutionary War that was going on in Europe at the time. I'll name like in particular in England, just as the French and Spanish entered. The hysteria that that created in the ports and all the intrigue around that, was largely blind to that world war aspect, I guess, if you will, around our Revolutionary War and getting independence. So I'll recommend it as well. But it is not a quick read. I will say so, but huge thanks, Andrea, for joining us.

This is something we're going to keep our eyes on. We're going to learn more about Kira in the weeks, months, years ahead, I have a feeling. So to all of you, keep your curiosity and questions and comments coming. We appreciate them. And we'll see you all next time on Class Disrupted.